



**Solution:** Cradlepoint NetCloud Service for Mobile & Panasonic TOUGHBOOK 33 ■ **Industry:** Fire ■ **Use Case:** Mission-Critical Communication

# Norfolk Fire & Rescue Service Boosts Communication Reliability in Rural Areas

Cradlepoint’s ESN-ready mobile broadband routers to keep frontline workers connected during critical situations



**The solutions provided by Cradlepoint and Panasonic are rock solid. We’re now able to see exactly how providers are performing in different areas and have a clear path forward to start realising the benefits of ESN connectivity.”**

**Anthony Fearn,**  
ICT Technical Manager,  
Norfolk Fire & Rescue Service

## Success Story Highlights

**Challenge** — Technologies and applications are helping frontline workers from emergency service agencies such as Norfolk Fire & Rescue Service (Norfolk F&RS) respond faster and communicate more effectively throughout the UK. However, when working across a large geographical footprint and serving many communities in remote, rural areas, fire vehicles often travel into signal “not spots.” Access to the Home Office’s forthcoming Emergency Services Network (ESN) is therefore a priority.

**Solution** — Norfolk F&RS deployed a joint solution including Cradlepoint’s dual-modem, ruggedised Gigabit-Class LTE routers and Panasonic’s TOUGHBOOK 33 tablets in the front cabs of its fire appliances as Mobile Data Terminals (MDTs).

**Benefits** — With out-of-the-box ESN accreditation, Norfolk F&RS is fully prepared to reap the benefits of this critical new communications system. In addition, using Cradlepoint’s NetCloud Manager (NCM), the IT team can monitor signal strength and performance across a wide geographical area and benefit from automatic network failover between multiple mobile operators. This results in a more consistent level of connectivity for frontline workers in and around fire vehicles, helping them respond faster and more efficiently to emergency call-outs.

## Background and challenges

Norfolk is one of the largest counties in the UK by area, while also being one of the least dense by population. This makes it even more important for emergency service workers to be able to respond to incidents quickly and effectively.

To accelerate the dispatch process, emergency services workers rely on the steady stream of data flowing to and from vehicles in the field, relaying everything from the location of people and assets to the current status of active jobs. Using this data, frontline workers can respond to incidents both faster and more efficiently, a critical capability in a job where just a few seconds can make a real difference.

However, uninterrupted connectivity between dispatchers and those in the field is foundational to this process, making weak or absent radio signal a significant challenge. This is especially prevalent in Norfolk, where 50 percent of the population live in rural areas. With fewer cellular towers and many natural features such as trees and forests, coverage “not spots” in these areas is a common occurrence.



## Connecting to the ESN

Norfolk F&RS' frontline workers employ a variety of connected equipment while out in the field. To help meet the 4G LTE availability and bandwidth requirements of these devices — especially in rural areas — access to ESN was a top priority.

As a critical communications system being rolled out by the UK Home Office for the sole use of the country's emergency services, edge network routers running on ESN are subject to high levels of security and quality requirements.

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“We're always trying to be an early adopter of the latest technology, but it's just as important that the tools we use are fit for purpose and up to scratch with regulatory standards,” said Anthony Fearn, ICT Technical Manager at Norfolk Fire & Rescue Service.

## Disruptions to vehicle availability

Just like frontline workers themselves, emergency response vehicles must be ready to jump into action at a moment's notice. There, vehicle availability is paramount; the service cannot constantly take vehicles off the road to install new features.

Norfolk F&RS needed mobile broadband solutions that could be installed efficiently, with further configuration changes and troubleshooting handled centrally rather than in person.

## Network visibility

With the official rollout of the ESN still some years off, Norfolk F&RS makes use of commercial networks for 4G connectivity. While network speed and bandwidth is more uniform across different networks in urban areas, the lower density of cellular towers in rural areas means that one carrier may be able to offer a higher-quality connection over the others in specific locations.

Ensuring frontline workers are always connected to the best available network is key. But with 3G sunsetting and the rollout of new 5G masts, the UK's telecoms infrastructure changing on an almost daily basis. As a result, getting an accurate and up-to-date picture of signal availability and locating coverage not-spots was a moving target.

## Solution

Norfolk F&RS replaced its legacy vehicle-based networking components with a joint solution comprising Cradlepoint's NetCloud Service for Mobile and ruggedised Gigabit-Class LTE routers and Panasonic's TOUGHBOOK 33 tablets in the front cabs of its fire appliances as Mobile Data Terminals (MDTs).



**Our LTE edge solutions enable response teams to access the best possible network connectivity available. With Cradlepoint's NetCloud Service, we can also see exactly how service providers are performing in a specific place at a specific time,"**

**Anthony Fearn**, ICT Technical Manager,  
Norfolk Fire & Rescue Service

## Benefits

### Day-1 ESN accreditation

As the first ESN-approved cellular router at the critical service level, Cradlepoint's routers provide out-of-the-box certification and authorisation to connect to the forthcoming network. Norfolk F&RS is now fully prepared to take advantage of the transformative new critical communications service, and to easily access and integrate the technologies they need in the field.

### Optimal connectivity

Choosing to make use of the router's field-upgradable second modem capability, Norfolk F&RS can now rely on connectivity from two separate networks simultaneously. If responders enter an area where one network carrier provides a more stable connection than another, the router will automatically switch to the modem connected to that carrier's network. This helps ensure continuous connectivity, even in the expansive rural areas covered by Norfolk F&RS.

### Cloud-based management for faster rollout

Collaboration between Cradlepoint and its partners helped significantly reduce periods of downtime for emergency service vehicles during installation. Using Cradlepoint's NetCloud Manager for centralized network management, each solution could be easily tested and configured to meet the necessary regulatory compliance standards.

“Despite also needing to respect social distancing measures due to the COVID-19 pandemic, each installation was completed in around a day,” Fearn said.

### Improved network resilience

The combination of Cradlepoint's dual-modem routers and cloud-based analytics and control helps Norfolk F&RS handle the frequent network drops and latency issues that are a common occurrence in rural areas.

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